Improving monitoring of tropical forests and their characterizations in NCEP models using GOES-R ABI land products data

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Objectives

- To improve the accuracy of land cover map and green vegetation fraction (GVF) dataset over tropical areas (Amazon and Central Africa) in NCEP models using GOES-R ABI data

- To assess impacts of the improved land products on the accuracy of numerical weather forecasting and climate modeling

Technical Approaches

- **Task 1: Processing SEVIRI data to create daily NDVI, GVF, LSWI, LST products (2007 ~ 2011)**
  - $NDVI = (R_{NIR}-R_{RED})/(R_{NIR}+R_{RED})$
  - $LSWI = (R_{NIR}-R_{SWIR})/(R_{NIR}+R_{SWIR})$
- **Task 2: Analyzing variations of vegetation seasonal change in wet- and dry-seasons**
- **Task 3: Analyzing vegetation's response to drought**
- **Task 4: Mapping land cover types**
- **Task 5: Assessing impacts of the newly developed vegetation type and GVF daily dataset on forecasting from NCEP global forecast system model**
  - Off-line Noah LSM with atmospheric forcing
  - GFS tests coupled with the Noah LSM